

North Carolina Poultry Industry Joint Area Newsletter

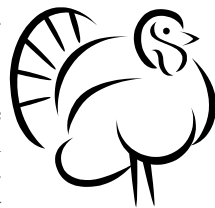
Fall, 2007

Nipple Drinkers for Brooding Turkeys

Jesse L. Grimes, Department of Poultry Science, NC State University; Summer Russell, Prestage Farms, Inc.

The use of nipple drinkers for rearing broilers has become common. However, the use of nipple drinkers in the turkey industry is restricted to the brooding period except for some trials and certain drinker types with commercial hen and tom grow-out. Even during the brooding period, there are many questions about what is the best type of drinker and optimal age of transfer to grow-out (or to open drinkers). With that in mind, we planned research trials to provide information concerning the use of nipple drinkers for brooding turkeys.

There were six different drinkers tested including the control and five nipple drinker systems. The control was the Plasson Turkey Bell and the nipple drinker systems tested were the Plasson Easy Start, Valco Turkey Drinker, Lubing Traditional (commercially known as Feather-Soft® high flow nipple with Littergard®), Lubing Easy Line, and Ziggity Big-Z Activator. For the most part, the birds were brooded on the test drinkers and switched to the bell drinker at six weeks of age for the remainder of the growing period. Three experiments were conducted with Large White commercial turkeys brooded using six drinker types. In Trial 1, six-week body weights of toms brooded on the Plasson Easy Start and the Ziggity, Big-Z Activator were less than the body weights of those toms brooded on the Plasson Bell. Differences in body weight due to drinker type remained through 10 weeks of age. At 20 weeks, body weights of toms brooded on the Lubing Traditional Nipple and the ValCo Turkey drinker were significantly lower compared to body weights of toms brooded on all other drinkers. There were no differences in feed conversion by drinker type until 20 weeks of age when birds brooded on the Lubing Traditional nipple and the Lubing Easy Line had lower (improved) feed conversion. Trial 2 with hens was terminated at three weeks because of excessive mortality. Hens of two strains brooded with the Easy Line did not show a desire to find the water which is typically located in the bottom of the drinker well. One strain, in particular, demon-



strated less activity than the other strain and experienced high mortality on all drinkers but especially on the Easy Line drinkers. In Trial 3 with hens, plastic “brooder” balls provided by Lubing were added to the wells of the Easy Line drinkers. There were no issues with the poult finding the water in this trial nor was there any problem observed in the tom trial where the plastic balls were not used. Body weight of hens brooded on the Plasson Bell and the ValCo Turkey drinker was higher compared to body weights of hens reared the Plasson Easy Start and the Ziggity, Big-Z Activator with the body weights of hens on the Lubing EasyLine™ being intermediate at six weeks. The Lubing Traditional Nipple yielded significantly lower hen body weight compared with all other drinkers through 10 weeks of age. By 16 weeks of age, there were no longer differences in hen body weight due to drinker type. Drinker type did not have a significant effect on hen feed conversion.

The use of nipple drinkers for turkey rearing has shown mixed results. Hulet (1999), in Pennsylvania, reported that nipple drinkers were effective in brooding conditions or up to 10 weeks of age. However, the results of his study resulted in reduced body weights with comparable or improved feed conversion. Similarly, in a field trial with commercial birds in North Carolina reported by Rives (2001), body weights seemed to be reduced at 5-6 weeks, but were stabilized by 10-12 weeks of age when the birds were put back on the Plasson Turkey Bell drinkers for the grow-out phase. In our study, like the Rives (2001) field trial, we found that birds experienced compensatory growth when put back on the Plasson drinker. We (for our studies) and Rives

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Improving Energy Efficiency for Broiler Farms

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Extension Specialist, Department of Poultry Science, North Carolina State University*

Winter is coming and it is time to prepare the houses for higher gas consumption. Propane gas prices and electricity costs will continue to increase. It is more important than ever before to make the houses and the farm more energy efficient. The work and investments done now will definitely pay back in the next months. To evaluate the benefits of your investments and changes in management, you need to record propane gas and electricity consumption every month or use bills as a reference. Comparing monthly data will reflect the success of your energy conservation program. These are some energy saving ideas for broiler farms:

Plan strategic brooding management. Most of the gas in broiler houses is used for brooding. Make a plan to optimize propane use, and maintain or even improve broiler performance. Do a good preheating of the house to have a uniform average litter temperature around 92 °F in the whole brooding area at placement of chicks. Maintain this temperature only for two or maximum three days, and start gradually reducing brooder temperature settings daily. Do not forget to maintain minimum ventilation. Radiant heaters are more efficient to warm the litter surface than pancake heaters. Side wall heaters will help you better to warm the air, but not the litter. If your chickens have a good start during the first three days, they will eat and start growing fast, producing enough metabolic heat that you will have to give them lower house temperatures to keep them comfortable, and consequently burning less gas. If chickens don't have a good reception, they normally require more heat during the rest of the brooding phase. In this case, reducing temperature and/or ventilation is detrimental for flock performance. In conclusion, good house and litter preheating will save you gas in the long term. Make daily and small gradual reductions (1° to 3°F) in brooder and heater settings to guarantee optimum comfort for the flock and save gas.

Implement a good brooder maintenance program. Keep the burner orifices clean. Sooty brooders indicate improperly burning of fuel and production of more carbon monoxide which is toxic for birds and humans. Use the proper size reaming needle to avoid altering the orifice size and wasting fuel. Adjust the pilot lights in the heaters to manufacturer's specifications. Shut off one-half the brooder pilot lights when they are not needed. In cold weather, the lit brooders provide heat until unlit brooders can be reignited.

Check gas regulator on the gas tank, gas line pressure and gas leaks. Inadequate pressure of gas can cause inefficiencies in the heaters. For safety do not, under any

circumstance, make adjustments to the regulator on the gas tanks—contact the gas company provider, and never test gas leaks with an open flame.

Maintain house controllers, sensors and thermostats.

Most broiler houses are controlled by electronic devices. Timers, sensors and thermostats lose accuracy with time, dust and humidity. Clean, test and recalibrate this equipment to make sure the house maintains the conditions that you will program in the controller during the whole day.

Keep heat in the house and avoid uncontrolled air entries.

Most of the energy efficiency is lost during winter time when uncontrolled cold air enters the house due to wall cracks or curtain holes. Caulk sill plates and seal cracks with expanding polyurethane foam, repair all curtain holes and eliminate cracks between curtain and house. To fit curtains close to the wall and cover the entire side-wall opening, you can install pocket flaps over the tops and ends of curtains. Make sure to insulate the tunnel inlets with curtains or insulated doors. Cover and seal all unused fan openings with plastic sheeting or curtain material. Clean shutters that allow unwanted air entry. Engineers say that a 1/8-inch crack along both sides of a 500-ft. house is equivalent to more than 10 sq. ft. of open wall or leaving uncovered a 2-ft. section of sidewall.

Adequate insulation for your weather conditions.

Broiler houses with solid side walls are more energy efficient than houses open sided with curtains. However, you can insulate open sided houses at least on the brooding chamber. Several new materials are available in the market. Independently of the type of house you have, repair or replace insulation in the ceiling and walls damaged or destroyed by rodents and insects. The insulation efficiency or minimum thermal resistance (R-value) of most insulation materials decreases drastically when moistened. Install vapor barriers inside of the brooding chamber to avoid build-up of humidity.

Avoid water leaks to save energy. Excess litter moisture in the house requires heat for moisture evaporation and removal. Reduce litter moisture by properly ventilating when adequate according to age of flock and weather. Do not delay the increments in ventilation rates, otherwise litter moisture will raise and it will be more energy expensive to get rid of extra humidity in the houses. Increasing ventilation rate should only be done during the warmest periods of the day.

Avoid temperature stratification by using mixing fans.

Warmer air tends to go to the ceiling and cooler air near the floor where it is not needed. Mixing fans help to circulate air and maintain a more uniform temperature at all

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Improving Energy Efficiency for Broiler Farms

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levels to guarantee chick comfort. This will reduce the amount of gas needed to guarantee optimum temperatures.

Replace incandescent bulbs with energy efficient alternatives. Light emitting diode (LED) lights and cold cathode lights use less energy than incandescent lights, last longer and are dimmable. One 5 watt cold cathode bulb will produce the same light as a 40 watt incandescent bulb. New dimmable fluorescent lights hooked to a timer and photocell combination allow for the proper amount of light to be maintained in the houses while reducing energy usage. The photo cells measure light levels in several locations in the house and the individual lights are controlled to provide just the required amount of light and no more. Light reflectors on fixtures can double the amount of light that reaches the birds and reduce lighting costs by one-half.

Updating houses. Several equipment companies are promoting different types of ceiling vents to utilize solar heat trapped in the attic of the houses. These attic vents could help to reduce the gas consumption by more than 15%, have more recirculation of air, maintain better litter quality, and reduce CO₂ concentration in the brooding chambers. When replacing poultry house fans, select the most efficient fans suited for your needs. If you need to change brooders evaluate using tube radiant brooders.

Producing energy. It is time to start thinking about solar panels to generate electricity. These systems are already under evaluation in commercial broiler houses not only to generate and save energy in batteries for the farm, but also to sell power back to the grid.

If you are interested in learning more about these saving ideas or want to do a test, please contact us at the Department of Poultry Science at NC State University.

The North Carolina Poultry Federation

Robert L. Ford, Executive Director, North Carolina Poultry Federation

The North Carolina Poultry Federation has been the voice of the North Carolina poultry industry for nearly four decades. Representing more than 37% of the total agricultural economy, poultry is the largest segment in the state's diverse food and fiber industries. Serving produc-

ers and processors of chicken, turkey and egg products, the Federation provides a united voice for the industry with government, media and the general public. The mission of the Federation is to create a favorable climate for business success for all those involved in the \$3 billion North Carolina poultry industry.

The Federation participates in a number of events to inform and educate elected officials on issues that impact the poultry industry such as the National Chicken Council's "Day in Washington" and The National Turkey Federation's "Legislative Leadership Conference" in Washington. Through its partnerships with NC State University, the NCDA and other state agencies, the Federation supports a number of educational and environmental programs. For example, the Federation's Poultry Environmental Grower's Award honors those poultry producers that exhibit best management practices for being good stewards of the land and water. The Federation also recognizes outstanding individuals who make significant contributions to the state's poultry industry with its annual "Distinguished Service Award".

With more than 5,000 family poultry farms in North Carolina, the Federation is proud to support the poultry food industry and the men and women who represent this dynamic sector of the North Carolina economy.

Why Join the North Carolina Poultry Federation

- ✓ NCPF is the watchdog organization that represents the interest of the poultry and egg industry on legislative, regulatory and public relation issues in NC.
- ✓ NCPF works to address communication issues with the news media.
- ✓ NCPF membership gives growers access to information about critical issues impacting the poultry industry.
- ✓ NCPF members receive a free quarterly newsletter.
- ✓ NCPF's Board of Directors include growers, company representatives, allied & associate members who all provide a strong voice and leadership in the direction of the federation.
- ✓ NCPF provides continuous advocacy in addressing poultry issues at the local, state and federal levels.
- ✓ NCPF speaks with a strong voice concerning legislation and regulatory challenges that will continue to face the industry in years to come.
- ✓ Meeting these future challenges to our industry depends on a strong membership.

Please join today by calling NCPF at (919)783-8218. For more information, visit our web site www.ncpoultry.org

Extension's Newest Area Poultry Agent

Richard Goforth, Area Poultry Specialist, North Carolina Cooperative Extension

As the newest member of the Extension family I would like to say thank you to all of the members of the Extension faculty and staff for helping me settle in to my new position. It has been a delight to work with the people in the poultry industry.



While I am new to Extension I have been working in poultry for eleven years and have been involved in agriculture all of my life. I am a native of North Carolina; growing up in Catawba County.

My family had a small farm where we raised beef cattle. We also had several close friends and family members who operated dairies or raised cattle, hogs, and crops. I attended NCSU where I graduated in 1993 with a BS in Animal Science. While studying for my degree I started working with Dr. Guillermo Gomez in the Animal Science department. We conducted research using piglets as research models for infant nutrition. I learned to care for pregnant sows and their litters. Dr. Gomez also taught me the proper procedures to conduct research and experiments. I continued working with him upon graduation until 1996 when I moved to the Poultry Science Department. While in Poultry Science I supervised the crew that was responsible for the care of research and teaching birds at Scott Hall, Varsity Drive, and the Dearstyne Annex. Because we worked with a large number of poultry species and breeds I learned a lot about how to manage and care for all kinds of birds. While in this position I began taking classes toward my masters in extension education. When my wife graduated in December of 1999, we moved to Union county so she could teach agriculture education and return closer to family and our rural roots. I started working at a local quail farm where I learned how to produced bobwhite quail for the hunting industry. I started out in the grow out side of the business. That included house setup, daily care, vaccination, catching, and cleanout operations. I later moved to chick operations where I managed the breeders, incubation and care of hatching chicks. During this time I continued my education and received my MA in Extension Education in 2004.

I have enjoyed and learned much from each of my past work experiences and know that I have more to learn in my role as an extension educator than ever before. I look forward to the challenge and expect that I will learn much

from the people in this industry. Together I hope we can strengthen the bond between the poultry industry and Extension and continue to ensure that both are a success in North Carolina and around the world. If anyone has a question, concern, need, or an idea on how I can better serve the poultry community please contact me. I look forward to working with you for many successful years.

Contacts for the North Carolina Poultry Industry Newsletter

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Nipple Drinkers for Brooding Turkeys

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(for his field trials) concluded that a combination of the two drinker types may be optimal in certain instances. For example, in our study, birds which were brooded on the Plason Easy Start and Ziggity and then switched to the turkey bell performed as well as the control birds. However, some new systems seemed to work well for the entire life of the flock. For example, birds on the Lubing Easy Line, which remained with the birds throughout the study, exhibited comparable performance to birds on the conventional Plason Turkey Bell.

In general, turkeys brooded on nipple drinkers can experience decreased body weight, improved feed conversion, and improved bird health. In some cases, this reduced body weight during brooding can be made up during the rearing phase. Hulet (1999) noted many advantages of nipple drinkers that can offset the disadvantage of reduced body weight. On a performance basis, even though body weight is reduced, feed conversion can be improved, and overall bird health can be improved due to the access to clean, less contaminated drinking water. Since nipple drinkers are a closed system, their use can result in drier litter which also contributes to improved growing conditions. Practically speaking, nipple systems provide growers with a labor saving alternative to traditional open-water systems especially since nipple drinkers need less cleaning. However, the water lines themselves still need regular cleaning and maintenance. As observed in our studies, some systems, whether they be new or improved, may result in comparable growth rates, improved litter quality and reduced grower labor depending, in most cases, on how they are used and managed.

Contact Information

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Poultry Youth Programs Update

Melissa Taylor Scherpereel, Department of Poultry Science, NC State University

Poultry Presentations and Judging at NC Annual 4H Congress

We had a great time at 4-H annual congress and poultry was well represented. 4hers competed in numerous poultry categories including; poultry judging, egg cookery, turkey barbecue, chicken barbecue and poultry presentations. The winning junior poultry judging team consisted of Betsy Tankersley, Caleb Worrell, Gideon Worrell and Hannah Worrell. The senior judging team was made up of Emily Talley, Adam Barnhardt and Cody Smith. Gold medal team winners each received a \$75 award. The senior judging team will represent North Carolina at the National 4-H Poultry and Egg Conference in Louisville, Kentucky this November. The judging contests were sponsored by the NC Poultry Federation and NC Breeder Hatchery Association. For more information on poultry judging, please visit <http://www.ces.ncsu.edu/depts/poulsci/4h/poultryjudging/congress.html> LeAnn Barger of Hickory won the turkey barbecue cooking competition for 14 – 18 year olds. Ann Margaret Deitrich of Raleigh won the chicken competition. Kellie Hatley of Stanfield won the egg cookery demonstration. All three winners received a \$37.50 award and a trip to the National 4-H Poultry and Egg Conference to compete representing NC. For more information on annual congress presentations, please visit <http://www.ces.ncsu.edu/depts/poulsci/4h/congress/presentations.html>

1st Annual Poultry Poster Contest

I am pleased to announce that our first poster contest was a great success! Posters were submitted in three age categories, (9-12, 13-15 and 16-19). Counties held their own competitions and submitted the county winners to the State contest by July 31st. Congratulations to our State winners! Division I, ages 9-12 (1st place, Joey Moore - Franklin, 2nd place, Sara-Ann Pate - Johnston, 3rd place, Octavia Hall - Cabarrus). Division II, ages 13-15 (1st place, Todd Elliott - Rutherford, 2nd place, Kelsey Seitter - Pender, 3rd place, Autumn Marks - Johnston). Division III, ages (16-19) (1st place, Rebecca Craven - Randolph, 2nd Place, Lisa Baxter - Catawba). A special "thank you" to our inaugural sponsor, the NC Poultry Federation. First place winners at the state level received \$50, second place \$35 and third place \$25 in each age division. Be sure and visit our website about how to enter next year's contest. Counties can conduct their contest at anytime during the year. Posters will

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Poultry Youth Programs Update

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always be due to our office in Poultry Science late July for State judging. The first place winning posters will be on display at the State Fair Youth Markey Turkey Show (Oct. 11th and 12th).

Turkey Show

Over 350 youth across North Carolina received turkey poult from the Department of Poultry Science in late May. Poults were donated by Goldsboro Milling, Inc. We had a very large crowd at this years show which was held on Oct. 12, at the NC State Fair. We had 15 classes of show birds with a total of 217 youth participating. Some competitors either lost turkeys for a variety of reasons or did not make the weight minimum and were not able to compete at the show. We will announce registration for the 2008 show this winter, so stay tuned as we will limit the number of participants due to our increased popularity and will require advance registration by all. Congrats to all of our winners and especially our Grand Champion, Chris Loehr, of Garner who received \$5000 from Harris Teeter and our Reserve Champion, Evan Gunter of Asheboro who received \$3500 from Iron Horse Auctions.

Poultry Science Summer Institute a HUGE Success!

The first annual poultry science summer institute for high school students was held in late July and was a huge success. Eighteen rising 11th and 12th graders were selected through an application process to attend a 4 day workshop in the Department of Poultry Science at NC State. Applications will be made available in January for the 2008 institute. Here is an article written by one of the attendees.

Poultry Science Summer Institute 2007

Before you begin to read this article, I would like for you to take a moment and think about just how much you know about chickens, turkeys and other poultry. Do you know how long it takes for a chicken to lay an egg, or how long it takes for a turkey POULT to hatch? What about the benefits that the poultry industry brings to North Carolina's economy? If you don't know the answers to these questions, then I could suggest two things. You could sit at home, turn on your computer and "Google" the answers. That, my friend, is a very boring route to take. The other option you have is to attend the Poultry Science Summer Institute (PSSI) on NC State's campus. This summer I was one of the lucky few who were cho-

sen through an application process to be a representative at the first PSSI. The group was made of 18 teenagers from all over North Carolina. We stayed at University Towers, which was very close to the Poultry Science buildings, so we were lucky to only have to walk a short distance to our classes. Four days brought us through rigorous learning and training. We experienced judging eggs, and learning about how exactly they are produced. We also learned about the hen's reproductive tract, and were able to dissect chickens and eggs with embryos. We visited a Feed Mill, and saw all of the components that are put into feed, and were taught exactly why they are added to feed. Poultry feed needs to have several different vitamins and minerals, but most importantly it needs to have carbohydrates in order for the birds to have energy. Protein is also an important factor for when hens begin to lay eggs. We were also able to experience lab work, in which we looked at DNA to try and define the fathering cockerel of a pullet (YOUNG FEMALE HEN). While all of this filled up our brains to an, almost full, capacity, we also had fun. As a group we were able to get to know each other through activities such as bowling, going to the mall, and also attending a Mudcats Baseball game. The Poultry Science Summer Institute was an amazing summer program. I learned so much more than I thought I knew about farm birds, and the sciences that are attached with them. I highly suggest this Institute to anyone considering having a Poultry Science or Animal Science major, as well as anyone who wishes to simply learn more about poultry. Sonia Cousineau, Alamance County.

As always, check our website for all of these youth programs and more at www.poultry4h.info or contact

